

## REMARKS

The Office Action mailed January 30, 2004 request that Applicant make additional elections. A review of the election selection indicated by the Examiner reveals that some misunderstanding as to the scope of the claims exists. Applicant apologizes for any confusion due to the language of the previously pending claims. Applicant has canceled claims 1-54 and has added new claims 55-109.

The Examiner identified three species of pyrolysis reactors. The patent application only discloses two types of pyrolysis reactors that move the organic containing substances and/or substance mixtures through the pyrolysis reactor, namely a moving bed reactor or a rotary drum reactor. A rotary kiln is a type of rotary drum reactor. A double deck oven is a type of moving bed reactor. As such, the patent application does not disclose or claim three types of pyrolysis reactors. Applicant submits that claims 55 and 91 include language that is generic to all pyrolysis reactors that can move substances through the reactor. As such, claims 55 and 91 are generic to these types of pyrolysis reactors. If an election is still warranted, Applicant elects to prosecute the pyrolysis reactor directed to rotary drums.

The Examiner also identified three species for the heat carrier material. According to the patent application, the heat carrier material must have sufficient mechanical, chemical, and thermal stability in the temperature range of 600-1000°C. Examples of heat carrier material that can be used include sand, silicon, grit, aluminum silicates, corundum, graywacke, quartzite, cordierite; and/or molded bodies of metallic and/or nonmetallic materials (e.g., steel or ceramic balls). The patent application also discloses that one or more of the materials listed as a possible catalyst for the reaction of pyrolysis gasses in the second reaction zone could be used as a heat carrier material. The catalyst identified in the patent application include dolomite, calcite, corundum, nickel, nickel oxide, nickel aluminate and/or nickel spinel. If one or more of these substances has the sufficient mechanical,

chemical, and thermal stability required for the heat carrier material, then one or more of these materials can be used as or included in the heat carrier material. Claims 55 and 91 merely refer to heat carrier material, thus are generic to all heat carrier materials. If an election is still warranted, Applicant elects heat carrier materials that include sand, silicon, grit, aluminum silicates, corundum, graywacke, quartzite and/or cordierite.

Finally, the Examiner states that the claims were directed to one or more species relating to the second reaction zone. Claims 55 and 91 merely refer to 1) feeding at least a portion of the pyrolysis gases and a reactant into a second reaction zone or 2) feeding said pyrolysis gas into a gas reactor. As such, claims 55 and 91 are generic to all reaction zones for the pyrolysis gases. If an election is still warranted, Applicant elects a bed reactor as the pyrolysis reactor.

Applicants submit that claims 55 and 91 are generic. Applicants further submit that claims 55-64, 70-82, 85-86 and 89-109 fall within the elected species, if such election is maintained by the Examiner.

Applicants submit that all the pending claims are in allowable form and notice to that effect is earnestly solicited.

Respectfully submitted,  
FAY, SHARPE, FAGAN, MINNICH & McKEE

By: 

ROBERT V. VICKERS

Reg. No. 19,504

1100 Superior Avenue, 7<sup>th</sup> Floor

Cleveland, Ohio 44114-2579

Telephone: (216) 861-5582

Facsimile: (216) 241-1666